

Figure 2

CO<sub>2</sub>Me 
$$\frac{1 \cdot \text{CbzCl}}{i \cdot \text{Pr}_2 \text{NEt}}$$
 O CO<sub>2</sub>Me  $\frac{\text{CO}_2 \text{Me}}{2 \cdot \text{O}_3 \cdot \text{PPh}_3}$  H R NHCbz

$$H_2$$
,  $Pd(C)$   $R$   $H_2$ N

## Figure 3

## Figure 4

(-)-21

(a) (-)-7b, (MeO)<sub>3</sub>CH/THF; (b) 18-c-6/KHMDS;

NHBoc NHBoc

(-)-20b

(-)-20

(-)-1

(c) (COCI)<sub>2</sub>, DMSO, DBU; (d) (-)-20, (MeO)<sub>3</sub>CH/THF

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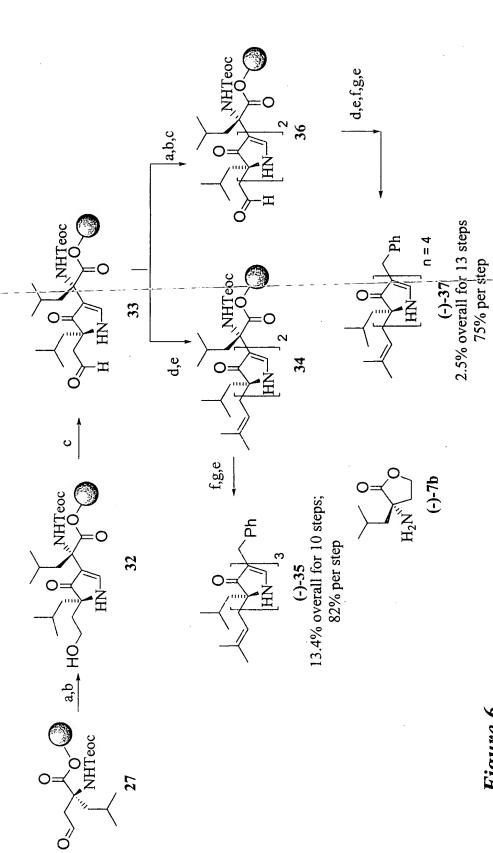
## (a) Wang resin, DEAD, PPI (c) PHCH2CH2CHO CH(OMe)<sub>3</sub>/THF two treatments (d) KDHMS; (e) O<sub>3</sub>, PPh<sub>3</sub> (b) TBAF (62% overall for 4 steps; 89% per step) 0= $(+)-22 R^1 = Teoc R^2 = OH$ 24: $R^1 = H$ ; $R^2 = O -$ 23: $R^1 = Teoc; R^2 = O-$ (+)-22

(-)-30 (36% overall for 7 steps; 86% per step)

Wang Resin 1% DVB cross linked (-)-31

(f) (31), CH(OMe)<sub>3</sub>/THF

two treatments;



(a) (-)-7b,  $(MeO)_3CH/THF$ , 2 treatments; (b) KHDMS/18-c-6; (c) DMSO,  $(COc^3)_2$ , DBU; (d) 31,  $(MeO)_3CH/THF$ THF, 2 treatments; (e) KHMDS; (f) CsF/DMF, TBAF; (g)PhCH<sub>2</sub>CH<sub>2</sub>CHO, (MeO)<sub>3</sub>CH/THF, 2 treatments